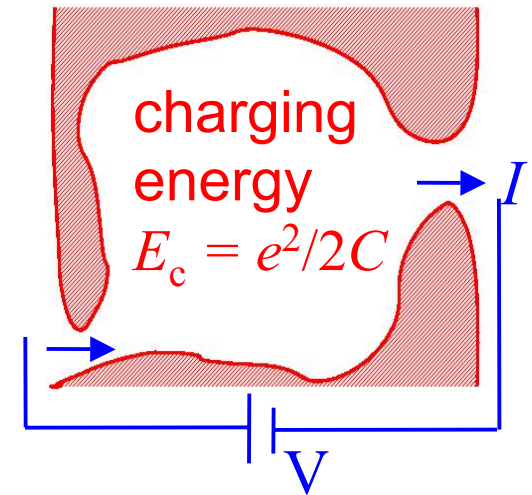


Mesoscopic effects in metal grains and quantum dots, Piet Brouwer, Cornell University, DMR 0334499

Quantum mechanical interference leads to small correction ΔG to the conductance G of a 'quantum dot', a metallic island coupled to electrodes via point contacts. The average and variance of ΔG were known for a model of non-interacting electrons.



In fact, electrons in a quantum dot are strongly interacting. The dominant form of electron-electron interactions in a quantum dot is the simple capacitive interaction. For this interaction we calculated ΔG . We found no change to the average, and a small change to the variance of ΔG . This helps to explain the quantitative success of the non-interacting theory.